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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------------------------|-------------|----------------------|---------------------|------------------|
| 10/603,604 | 06/26/2003 | Nobuhito Yamaguchi | 03500.017344. | 2902 |
| 5514 | 7590 | 11/30/2004 | EXAMINER | |
| FITZPATRICK CELLA HARPER & SCINTO | | | FEGGINS, KRISTAL J | |
| 30 ROCKEFELLER PLAZA | | | ART UNIT | |
| NEW YORK, NY 10112 | | | PAPER NUMBER | |
| | | | 2861 | |

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/603,604

Applicant(s)

YAMAGUCHI, NOBUHITO

Examiner

K. Feggins

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-9 and 15 is/are allowed.
- 6) ☒ Claim(s) 10-14 and 16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 10-14 & 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Kitahara (US 6,357,846 B1).

Kitahara discloses the following claimed limitations:

* regarding claim 10, an ink jet recording apparatus for performing a recording operation by discharging in form a discharge port of an ink jet head (Abstract);

* driving means for discharging the ink from said discharge port in response to a recording signal (figs 1 & 4);

* meniscus vibrating means for vibrating a meniscus in the vicinity of said discharge port which does not discharge the ink during a recording operation, with a period shorter than a discharging period/printing pulse period/ for the recording operation /the printing period consist of a printing pulse period and a fine vibration pulse period; the fine vibration pulse period is shorter than the printing pulse period/ (fig 4, col 11, lines 36-67, col 12, lines 1-14).

* regarding claim 11, wherein said means for generating the vibration are an electrostriction element/piezoelectric vibrator/ (col 11, lines 3-12).

* regarding claim 12, wherein said means for generating the vibration are a heating element for generating a bubble in the ink (col 11, lines 3-12).

* regarding claim 13, wherein said means for generating the vibration are means for causing deformation of a pressure chamber by using an electrostatic force/ piezoelectric vibrator/ (col 11, lines 3-12).

* regarding claim 14, wherein said means for generating the vibration are a small vibration/fine vibration/ adding device/piezoelectric vibrator charged with fine vibration pulses/ (col 11, lines 3-23, 59-67, col 12, lines 1-15).

* regarding claim 16, an ink jet recording method for performing a recording operation by discharging ink from a discharge port of an ink jet head (Abstract);

* a step for discharging the ink from said discharge port in response to a recording signal (figs 1 & 4);

* a meniscus vibrating step for vibrating a meniscus in the vicinity of said discharge port which does not discharge the ink during a recording operation, with a period shorter than a discharging period for the recording operation/the printing period consist of a printing pulse period and a fine vibration pulse period; the fine vibration pulse period is shorter than the printing pulse period/ (fig 4, col 11, lines 36-67, col 12, lines 1-14).

Allowable Subject Matter

3. Claims 1-9 & 15 are allowed.

The following is an examiner's statement of reasons for allowance: The primary reason for allowance of claims 1-9 is the inclusion of the limitations of an ink jet recording apparatus that includes meniscus vibrating means for vibrating a meniscus in the vicinity of the discharge port, with repetition frequency not belonging to an audible frequency range or belonging to a low frequency range, in a case where the ink is not discharged from the discharge port. It is these limitations found in the claims, as they are claimed in the combination of that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.

The primary reason for allowance of claim 15 is the inclusion of a method steps of an ink jet recording apparatus that includes a meniscus vibrating step for vibrating a meniscus in the vicinity of the discharge port, with repetition frequency not belonging to an audible frequency range or belonging to a low frequency range, in a case where the ink is not discharged from the discharge port. It is these steps found in the claims, as they are claimed in the combination of that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Morikoshi et al. (US 6,382,754 B1) disclose an ink jet printing device that supplies first and second signals to cause a pressure generating chamber to jet out ink droplets.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Communication With The USPTO

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Feggins whose telephone number is 571-272-2254. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



K. Feggins
Primary Examiner
November 23, 2004